REMARKS

Claims 1, 7 through 10 and new Claims 11 and 12 are pending in the application.

Claims 11 and 12 have been added to complete the record for examination and highlight advantageous embodiments of the invention.

Claim 11 is directed to advantageous inventive mixtures consisting essentially of (i) HFCS 42; Acesulfame K and one or more optional additives selected from flavours, bulking agents and weighting agents. Support for Claim 11 can be found in the Application-as-filed, for example on Page 4, second and third full paragraphs in their entirety.

Claim 12 is directed to advantageous inventive mixtures in which the sweetness and taste profile of the inventive mixture does not significantly differ from the sweetness and taste profile of pure HFCS 55 on a quantitative descriptive analysis using 5 sensory descriptors. Support for Claim 12 can be found in the Application-as-filed, for example on Page 4, seventh full paragraph through Page 6, fifth full paragraph in conjunction with Figure 1.

Applicants respectfully submit that this response does not raise new issues, but merely places the above-referenced application either in condition for allowance, or alternatively, in better form for appeal. Reexamination and reconsideration of this application, withdrawal of all rejections, and formal notification of the allowability of the pending claims are earnestly solicited in light of the remarks which follow.

The Claimed Invention is Patentable
in Light of the Art of Record

Claims 1 and 7 through 10 stand rejected over Simon et al in view of United States Patent No. 6,294,214 to Calderas et al (US 214).

Applicants respectfully reiterate that the claimed invention is directed to sweetener mixtures providing a sweetness and taste profile that does not differ significantly from the sweetness and taste profile of pure HFCS 55. In contrast to the urgings of the Office Action, significant inventive work was required to provide the inventive mixtures.

As noted in Applicants' Amendment of February 22, 2006, HFCSs are common liquid sweeteners formed from isomerized corn syrups. HFCSs are typically available as either HFCS 42, containing 42 % fructose, or HFCS 55, containing 55 % fructose. The taste profiles of these two HFCSs differ from each other. HFCS 42 is more economical in comparison to HFCS 55. However, amongst HFCSs, it is well accepted that the taste quality, i.e. the sweetness level, of HFCS 55 is superior to HFCS 42. Consequently, HFCS 55 is regarded as a sweetness standard in certain regions and product categories.

Quite surprisingly, Applicants have discovered HFCS 42-based sweetener mixtures providing a taste profile comparable to HFCS 55. Applicants have more specifically found that blends including components each known individually to have tastes that differ significantly from HFCS 55 which, as a blend, provide the sweetness and taste profile of HFCS 55. Such a result is altogether unexpected, to say the least.

Accordingly, the claims are directed to sweetener compositions including HFCS 42 and from 0.015 to 0.035 wt % (based on the weight of the HFCS42) of acesulfame K.

None of the cited references teaches or suggests the claimed invention.

Simon is generally directed to reduced-calorie soft drinks. Simon initially performed trials as to the relative sweetness of various intense sweeteners as a function of their concentration. Simon went on to determine the amount of each intense sweetener needed for various carbohydrates to make a solution as sweet as a 10% sugar solution. (Page 332, 5th full paragraph, first sentence). Simon indicated from 320 to 560 mg/l of Acesulfame K as "optimum". (Page 332, 1st full paragraph in its entirety and Figure 7, 1st Step "standard"). Simon then went on to strongly recommend the use of a mixture of intense sweeteners. (Page 332, 4th full paragraph, 1st sentence.). Simon goes so far as to state that "the combination of ... carbohydrate with only one intense sweetener can not ... be the solution." (Page 332, 5th paragraph, 3rd sentence).

Simon subsequently engaged in a trial of various carbohydrate sweeteners and blends of intense sweeteners. (Page 332, 5th full paragraph, fourth sentence). Four intense sweeteners were tested, including saccharin and cyclamate, using undisclosed amounts of each sweetener. (Page 332, Figure 11). The "most suitable combinations with respect to taste quality" were then determined using an undisclosed sensory test method. (Page 332, 5th full paragraph, fifth sentence). The taste panel results are provided in Figure 11 as shaded blocks. (Page 332, 5th full paragraph, sixth sentence and Figure 11).

Simon indicates in Figure 11 that HFCS 42 may be combined with a binary mixture of cyclamate and aspartame. (Page 332, Figure 11). As correctly noted by the Examiner, Acesulfame K is disclosed within Figure 11. Acesulfame K, apparently generally disfavored among the taste testers, is only shown in Figure 11 to be suitable within a quaternary high intensity sweetener blend in further combination with HFCS 90; however. (Page 332, Figure 11). Simon's Figure 11 provides strong evidence that individual components within a sweetener mixture have an unpredictable effect upon the resulting taste.

Based upon the foregoing sweetness and taste results, Simon designed a computer model (further evidencing the complexity of taste matching efforts) to calculate the type and amount of intense sweetener suitable for use with a "3% carbohydrate". (Page 332, 6th full paragraph, first sentence.). The computer model automatically eliminated combinations that the previous testing ~~had considered unsatisfactory~~. (Page 332, 6th ~~full paragraph, second sentence.~~) ~~Based on~~ the computer model, Simon ultimately recommends a combination of glucose syrup containing 9% fructose and several binary blends of high intensity sweeteners. (Page 333, first paragraph).

Simon, seeking to match the taste of sugar solutions, does not teach or suggest the recited mixtures providing the sweetness and taste profile of HFCS 55.

Applicants further respectfully reiterate that Simon does not teach or suggest the recited mixtures formed from (i) HFCS 42 and (ii) Acesulfame K as the sole high intensity sweetener. Simon instead clearly suggests a binary mixture of altogether different high intensity sweeteners, i.e.. cyclamate and aspartame, in combination with HFCS 42. In fact, Simon states that the recited combination of carbohydrate with only one intense sweetener "can not ... be the solution". Simon then goes on to recommend the use of acesulfame K in either a binary or a quaternary high intensity sweetener blend along with either glucose syrup or HFCS 90, respectively.

And Simon most certainly does not teach or suggest such sweetener compositions containing Acesulfame K as a single high intensity sweetener in amounts as low as 0.015 wt%. Nor does Simon teach or suggest such sweetener compositions containing from 0.026 to 0.030 wt.% of Acesulfame K, as recited in Claim 8.

Nor would there have been any motivation to have chosen the claimed components or amounts, based on Simon. After multiple trials and complex computer modelling, Simon ultimately recommends binary high intensity sweetener mixtures with a 9 % fructose syrup as providing optimal sweetness. It is well known in the art that increasing fructose content imparts

greater sweetness, as evidenced by Simons indicating the 9 % fructose syrup did not impart sweetness. The recited HFCS 42 thus has a higher sweetness than Simon's 9 % fructose syrup.

It is further known in the art, pursuant to Simon, that lower amounts of intense sweetener ~~provide greater sweetness. Accordingly, there would have been no motivation to taken a~~ formulation that, after extensive research, Simon proffered as having optimum sweetness and change that recommended formulation by combining a sweeter fructose, i.e. HFCS 42, with a sweeter intense sweetener mixture, e.g. the recited 0.015 minimum wt% of Acesulfame K.[1]

And Simon, employing an undisclosed testing methods to determine "suitable combinations," most certainly does not teach or suggest the inventive mixtures having a sweetness and taste profile comparable to HFCS 55 on a five point sensory analysis, as recited in Claim 12. In that regard, Applicants respectfully submit that Simon does not explain his sensory methodology nor his results nor how close or different his products are compared to sugar. In contrast, Applicant's determination is based on a quantitative description analysis with trained panellists using five sensory descriptors. In contrast to Simon's testing, such quantitative descriptions are analogous to an analytical instrument.

Accordingly, Simon does not teach or suggest the claimed invention.

Consequently, Applicants respectfully submit that the claimed invention is patentable in light of Simon, considered either alone or in combination with US 214.

US 214 is directed to improving the microbial stability of a non-carbonated beverages. (Col. 1, lines 10 – 12). The "essential elements" of US 214 include a preservative, a polyphosphate, and a given water hardness. (Col. 3, lines 1 - 28). US 214 merely generically

[1] Applicants further take this opportunity to note that "even minor changes from the prior art can produce a patentable invention so long as the result could not have been predicted beforehand by one skilled in the art. *Penn Int'l Indus. V. Pennington Corp.*,200 USPQ 651, 654 (9th Cir. 1978). Clearly, the claimed mixtures with a sweetness of pure sucrose (which constitute a significant change from the prior art) could not have been predicted from the teachings of Simon.

notes that its beverages can contain any of a laundry list of natural or "optional" artificial sweeteners. (Col. 8, lines 22 – 64). The natural sweetener may be present in amounts of up to 20%. (Col. 8, lines 28 – 31). US 214 is silent as to the recommended amounts of any optional artificial sweeteners, however. The working examples of US 214 indicate the use of HFCS 55 ~~alone, in an amount of about 131%. (Col. 10, line 63 – Col. 11, line 21). US 214, concerned~~ solely with microbial stability, is altogether silent as to the taste profile of the resulting beverages.

Applicants respectfully reiterate that US 214 does not teach or suggest the recited mixtures having a taste profile comparable to HFCS 55.

US 214, generically noting the potential use of any of a laundry list of natural sweeteners and "optional" artificial sweeteners to impart an unspecified flavour profile, further does not teach or suggest that the recited mixtures including HFCS 42 and acesulfame K alone would provide a taste profile comparable to HFCS 55.

And US 214, altogether silent as to "optional" artificial sweetener amounts, most certainly does not teach or suggest the recited mixtures including from 0.015 to 0.035 wt.% of acesulfame K alone.

Nor does US 214 teach or suggest advantageous inventive mixtures in which the sweetness and taste profile of the inventive mixture does not significantly differ from the sweetness and taste profile of pure HFCS 55 on a quantitative descriptive analysis using 5 sensory descriptors, as recited in Claim 12.

US 214, requiring a particular antimicrobial composition, likewise fails to teach or suggest the advantageous inventive mixtures consisting essentially of (i) HFCS 42; Acesulfame K and one or more optional additives selected from flavours, bulking agents and weighting agents, as recited in Claim 11. In fact, to modify US 214 so as to avoid the inclusion of its

required antimicrobial composition would clearly render the resulting beverages unfit for their intended purpose. MPEP 2143.01 (citing *In re Gordon*, 221 USPQ 1125 (Fed. Cir. 1984)).

Consequently, Applicant respectfully submits that the claimed invention is patentable in ~~light of US 214, considered either alone or in combination with Simon.~~

There would have been no motivation to have combined these references. Merely because the references can be combined is not enough, there must still be a suggestion. MPEP 2143.01 (section citing *Mills*). Applicants respectfully reiterate that the Office Action is instead indulging in impermissible hindsight by merely picking and choosing elements from the prior art while using the instant specification as the guide for that selection process, rather than considering the references as a whole.

Simon is broadly directed to reduced-calorie soft drinks purportedly having a taste comparable to sugar that include binary blends of high intensity sweeteners. US 214 addresses the microbial stability of beverages using a combination of preservatives, polyphosphate and water of specified hardness. These are altogether different problems solved, to say the least.

However, even if one were to combine the cited references (which Applicants did not), the claimed invention would not result.

In particular, the combination would not result in the recited HFCS 42-based sweetener compositions imparting a taste profile of HFCS 55 that are formed from a combination of HFCS 42 and acesulfame K alone. Simon, at the time the instant invention was made, clearly taught away from the recited single high intensity sweetener by expressly noting that the recited combination of carbohydrate (i.e. HFCS 42) with only one intense sweetener (i.e. Acesulfame K) "can not ... be the solution." Simon then goes on to recommend the use of Acesulfame K in either binary or quaternary high intensity sweetener blends along with either glucose syrup or

HFCS 90, respectively. The secondary reference, US 214, makes absolutely no mention of specific sweetener compositions.

Applicants thus respectfully reiterate that the combination would not result in the claimed mixtures including ~~HFCS~~ 42 ~~and from 0.015 to 0.035 wt.% of acesulfame K alone.~~

Applicants further respectfully reiterate that significant inventive work was required to achieve more economical, HFCS 42-based beverages with a taste profile that is comparable to HFCS 55. Simon evidences the complexity of the inventive work, indicating that two separate taste studies and a computer model were required to produce his suggested compositions. Hence the recited mixtures are not mere optimization. Applicants further note that, although more economical products having as taste profile comparable to that of HFCS 55 have been a goal for a substantial amount of time, there remains much room for improvement in meeting this longfelt need.

Accordingly, Applicant respectfully submits that Simon and US 214, considered either alone or in combination, do not teach or suggest the claimed invention, reciting HFCS 42 in combination with 0.015 to 0.035 wt.% of acesulfame K alone.

Applicant thus respectfully submits that the claimed invention is patentable in light of Simon and US 214, considered either alone or in combination.

CONCLUSION

It is respectfully submitted that Applicants have made a significant and important contribution to the art, which is neither disclosed nor suggested in the art. It is believed that all of pending Claims 1 and 7 through 12 are now in condition for immediate allowance. It is requested that the Examiner telephone the undersigned if any questions remain to expedite examination of this application.

It is not believed that extensions of time or fees are required, beyond those which may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time and/or fees are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required is hereby authorized to be charged to Deposit Account No. 50-2193.

Respectfully submitted,

Cathy Moore

Cathy R. Moore
Reg. No. 45,764

ProPat, L.L.C.
425-C South Sharon Amity Road
Charlotte, NC 28211-2841
Telephone: (704) 365-4881
Fax: (704) 365-4851

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Claire Wygand

Claire Wygand